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SENSITIVE

DEPARTMENT FOR EUR/SE, EUR/PRA, ISN/NESS; DOE/NNSA FOR
BIENIAWSKI

E.O. 12958: N/A
TAGS: [KNNP](#) [ENRG](#) [MNUC](#) [PARM](#) [TRGY](#) [TU](#)
SUBJECT: TURKEY: MOU SIGNED ON HEU FUEL RETURN AND
CONVERSION OF TURKEY'S TR-2 RESEARCH REACTOR

REF: A. STATE 9294
[B](#). ANKARA 401
[C](#). STATE 106280
[D](#). ANKARA 1721

Sensitive but Unclassified. Please Treat Accordingly.

[1](#)1. (U) SUMMARY: Officials from the U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA) Office of Global Threat Reduction, and from the Department's Office of Nuclear Energy, Safety and Security (ISN/NESS) met with the president and other officials from the Turkish Atomic Energy Authority (TAEK) on September 19 to re-engage on discussions of highly-enriched-uranium (HEU) fuel return and research-reactor conversion (REFS A and B) under the Global Threat Reduction Initiative (GTRI). The sides successfully completed and signed a Memorandum of Understanding and a side letter (text in paragraph 8) that outlined their respective plans for completing this project. Some additional discussion took place on possible GTRI cooperation in the area of radiological security, about which a follow-up letter and nonpaper was sent to TAEK on October 3 (REF C). END SUMMARY.

Greater Receptivity Following 123 Agreement

[1](#)2. (U) Prior to the U.S. bringing into force the U.S.-Turkey Agreement for Cooperation ("123 Agreement") in June, TAEK had remained resistant to re-engaging in talks on repatriation of the U.S.-origin HEU fuel at the TR-2 research reactor at Cekmece. In light of the 123 Agreement and possibly also due to Turkey having just participated in a bilateral interagency symposium with various U.S. agencies on nonproliferation and export control cooperation (REF D), TAEK president Okay Cakiroglu seemed eager to get down to business and finally take steps to complete the fuel-return project. His main concerns were addressed in the draft MOU presented by the U.S. side at the initial meeting, namely (a) that fresh LEU replacement fuel be provided prior to the removal of the HEU fuel still in the core, so as to minimize any impact on reactor operations, and (b) that a full contingent of LEU fuel be provided, including enough to cover a leftover "credit" for a partial HEU repatriation carried out in 1984, prior to the expiration of the former 123 Agreement. TAEK participants agreed that the 18 fresh fuel assemblies (FA) were a very reasonable trade for the 30 HEU FA's to be returned, all but one of which was irradiated.

Conditions to Close the Deal

¶3. (SBU) After briefly reviewing the draft MOU, Cakiroglu presented only two concerns: (a) that the contracting for the replacement LEU be "clean" and bilateral, and not be complicated by a trilateral undertaking in which Areva-CERCA, a French company, would be mentioned as providing -- on different terms -- 10 of the 18 fuel elements, and (b) that the one "fresh" (non-irradiated) HEU fuel element at Cekmece be allowed to remain in Turkey for scientific and instrumentation-related research, given that it would be virtually impossible to obtain any more HEU in the future.

¶4. (SBU) The U.S. side suggested that if the leftover credit still on the books at DOE's Y-12 site (for roughly 4.7 kg of HEU, translating into the equivalent of about 21 kg of LEU equivalent) could be cleared off the books in this transaction, then DOE would likely be able to provide all 18 replacement elements in a single DOE-funded contract. Before the afternoon meeting with TAEK, the U.S. del contacted Areva-CERCA representative Larent Halle, who was able to confirm CERCA's willingness to proceed in this manner and that the nominal time between contract signing and delivery of the LEU fuel to Turkey would be 12 months.

¶5. (SBU) Regarding Turkey's request to retain the fresh HEU fuel assembly, the U.S. side suggested that TAEK provide a side letter that would state the scientific justification for retaining the one fresh HEU element (which contains about 200 g of uranium) for research and instrumentation. The letter should also note that this material would be subject to all appropriate physical protection measures and safeguards, not be re-inserted into the reactor, and be made available for return to the United States (without further LEU compensation) as soon as it was no longer needed for such

research in Turkey. The U.S. side also pressed for a compromise in which Turkey would retain only a few of the 17 plates in that assembly, but TAEK argued that removal of plates from such an instrumented control assembly would not be advisable prior to shipment.

Discussion on Radiological Security

¶6. (SBU) In the afternoon meeting, after the MOU and side letter were signed (final text included in paragraph 8, signed originals were hand-carried by the delegation back to Washington, copies of the documents have been sent to EUR/SE and DOE/NNSA), the U.S. head of del also raised the possibility of GTRI cooperation on radiological security -- for example, physical protection for sources used in hospitals or radiological border security involving Iraq and Jordan. Cakiroglu pushed back with several points: Turkey's regulation (through TAEK) of radioactive sources now involves over 30,000 licenses and is better than most countries in the EU and vastly improved vs. 5 years ago; there is no problem with orphaned sources in Turkey; any terrorists in Turkey would probably be too afraid of the radioactivity from hospital sources to try to steal them. He did note, however, that it might be of interest to have U.S. and Turkish experts "mutually" discuss their approaches, such as "design basis threat" assessments and relevant countermeasures based on that methodology, and if the U.S. had any concerns with specific facilities in Turkey in this regard, they should be mentioned explicitly. (The U.S. followed up on these points with a proposal in REF C for a meeting of experts.)

¶7. (SBU) Cakiroglu also agreed that there had been some ongoing concerns with radioactive scrap metal coming into Turkey from Iraq 3-4 years ago. He mentioned that several actions were proposed at the time to address this (including installing detectors 10 km within Iraq; providing training in Turkey for 30 Iraqi experts, or a joint meeting of senior-level officials with Jordan), but he was aware of little follow-through except for a \$230,000 IAEA-funded radiological-security project for Iraq. Nevertheless, these problems have since diminished. He also claimed that radiological research in Turkey was continuing to make

progress, and that certain agricultural accomplishments were especially noteworthy, including advances in affecting the blooming cycle of olive trees, a key crop in Turkey's economy.

18. (U) BEGIN TEXT OF MOU AND SIDE LETTER:

MEMORANDUM OF UNDERSTANDING BETWEEN
THE TURKISH ATOMIC ENERGY AUTHORITY OF THE REPUBLIC OF TURKEY
AND
THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA
CONCERNING REPLACEMENT OF TR-2 RESEARCH REACTOR FUEL FOR
CONTINUED OPERATIONS

RECOGNIZING the Agreement of Cooperation between the Government of the United States and the Government of the Republic of Turkey Concerning the Peaceful Uses of Nuclear Energy that entered into force on June 2, 2008;

ACKNOWLEDGING that peaceful uses of nuclear energy should be encouraged in ways that reduce proliferation risks;

The Turkish Atomic Energy Authority (TAEK) and the United States Department of Energy (DOE), through its National Nuclear Security Administration (NNSA) agree to move forward to establish a low enriched uranium (LEU) fueled TR-2 Research Reactor for continued reactor operations.

NNSA and TAEK note their intent in principle to cooperate on completing the full conversion of the TR-2 Research Reactor at the ekmece Nuclear Research and Training Center to operate on LEU fuel and on returning the highly enriched uranium fuel to the country of origin. NNSA and TAEK intend to accomplish these efforts through the following actions:

11. NNSA will provide 18 LEU replacement fuel assemblies, which are equivalent in amount to the unused U-235 in the 30 assemblies to be repatriated and account for all past credits between TAEK and NNSA;

12. During LEU fuel fabrication, TAEK and NNSA will enter into a contract for the return of the HEU fuel to the United States under the general provisions of the example contract

provided by NNSA with several additional clarifications:

a. Replacement LEU fuel will be delivered to the ekmece Nuclear Research and Training Center prior to the discharge of the TR-2 HEU fuel so as to ensure no impact on reactor operations,

b. Following this meeting, DOE/NNSA will immediately initiate contract negotiations so that replacement LEU fuel will be delivered to the ekmece Nuclear Research and Training Center within 12 months of signing of the contract,

c. The TR-2 reactor will be converted to operation on LEU fuel only,

d. Other conditions as mutually agreed upon.

13. Upon delivery of the new LEU fuel to the ekmece Nuclear Research and Training Center, TAEK would make available and coordinate the prompt return of the HEU to the United States under the conditions of the TAEK) NNSA contract;

14. NNSA would pay for transport costs associated with repatriation of the HEU fuel and TAEK would assist with coordination within Turkey; and

15. No fees would be charged to TAEK for fuel disposition.

Signed at TAEK, on the 19th day of September, 2008.

FOR THE NNSA:
/s/
Andrew Bieniawski

Assistant Deputy Administrator
For Global Threat Reduction

FOR TAEK:
/s/
Okay Cakiroglu
President

END TEXT OF MOU.

BEGIN TEXT OF SIDE LETTER:

(LETTERHEAD) TURKISH ATOMIC ENERGY AGENCY

Mr. Andrew Bieniawski
Director, Office of Global Threat Reduction
U.S. Department of Energy/National Nuclear Security
Administration
Washington, DC

Dear Mr. Bieniawski:

Referring to the Memorandum of Understanding between TAEK and DOE/NNSA of September 19, 2008, concerning low enriched uranium replacement fuel for the TR-2 Reactor at Cekmece and return of the highly enriched uranium (HEU) fuel elements to the United States, I would like to confirm the following understandings:

TAEK will retain one unirradiated HEU fuel assembly (which is an instrumented control assembly consisting of 17 plates, containing a total of approximately 208 grams of U-235) for research, scientific, and instrumentation purposes.

The retained HEU material will not be inserted into the TR-2 reactor.

All appropriate physical protection measures and requisite IAEA safeguards will continue to be applied to this material.

TAEK intends to make this material available for return to the United States in the future once it is no longer needed for the above-stated purposes in Turkey.

Sincerely,

/s/

Okay CAKIROGLU
President

END TEXT OF SIDE LETTER.

9. (U) Participants:

Andrew Bieniawski, Director, Office of Global Threat Reduction, DOE/NNSA/NA-21 (Head of Del)
Dan Fenstermacher, Office of Nuclear Energy, Safety and Security, ISN/NESS, Dept. of State
Chuck Messick, Program Manager, FRR SNF Acceptance Program, Savannah River Site

Okay Cakiroglu, President, TAEK
Dr. Ali Tanerkurt, Vice President, TAEK
Dr. Ediz Tanker, Vice President, TAEK
Ms. Aysun Yucel, Head of Nuclear Safety Department, TAEK
Dr. A. Sinan Taylan, Head of Nuclear Installation Division of the Cekmece Nuclear Research and Training Center

10. (U) This cable was cleared by the U.S. delegation.

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WILSON